SA-VE502/VE505/ WMS5/SS-MS5

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

The SA-VE502 system consists of one unit of SA-WMS5 and two units of SS-MS5.
The SA-VE505 system consists of one unit of SA-WMS5 and five units of SS-MS5.

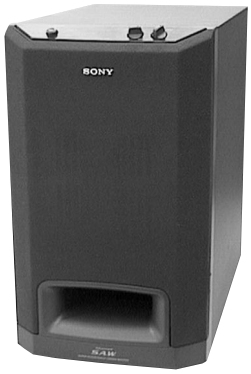


Photo: SA-WMS5

Photo: SS-MS5

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US model)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

with 8 ohm loads both channels driven, from 20 - 150 Hz; rated 100 watts per channel minimum RMS power, with no more than 0.8% total harmonic distortion from 250 milliwatts to rated output.

SS-MS5 (front, center, and rear speakers)

Speaker system	Full range × 2, magnetically shielded
Speaker units	5 cm (2 in.), balance drive type
Enclosure type	Bass reflex
Rated impedance	8 ohms
Power handling capacity	
Maximum input power:	120 watts
Sensitivity level	87 dB (1 W, 1 m)
Frequency range	120 Hz - 20,000 Hz
Dimensions (w/h/d)	Approx. 77 × 131 × 105 mm (3 1/8 × 5 1/4 × 4 1/4 in.), including front grille
	Approx. 131 × 125 × 113 mm (5 1/4 × 5 × 4 1/2 in.), with center speaker stand attatched
Mass	Approx. 730 g (1 lb 10 oz) each

SA-WMS5 (subwoofer)

System	
Speaker system	Active subwoofer, magnetically shielded
Speaker unit	Woofer: 20 cm (8 in.), cone type
Enclosure type	Advanced SAW type
Practical maximum output	100 W
Reproduction frequency range	
Inputs	
LINE IN (input pin jack)	
SPEAKER IN (input terminals)	
Outputs	
LINE OUT (output pin jack)	
SPEAKER OUT (output terminals)	
General	
Power requirements	
US, Canadian models:	120 V AC, 60 Hz
AEP, UK, German models:	220 - 230 V AC, 50/60 Hz
Malaysia, Singapore models:	220 - 240 V AC, 50/60 Hz
Power consumptions	80 W
Dimensions (w/h/d)	Approx. 230 × 380 × 440 mm (9 1/8 × 15 × 17 3/8 in.), including front grille
Mass	Approx. 13 kg (28 lb 10 oz)

Supplied accessories

SA-VE505
- Center speaker stand (1)
- Screw (for the center speaker) (1)
- Audio connecting cord (1)
- Speaker connecting cords, 10 m (32 ft 9 3/4 in.) (2)
- Speaker connecting cords, 2.5 m (8 ft 2 1/2 in.) (5)

SA-VE502
- Audio connecting cord (1)
- Speaker connecting cords, 2.5 m (8 ft 2 1/2 in.) (4)

Design and specifications are subject to change without notice.

MICRO SATELLITE SYSTEM

MICROFILM

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage.
Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

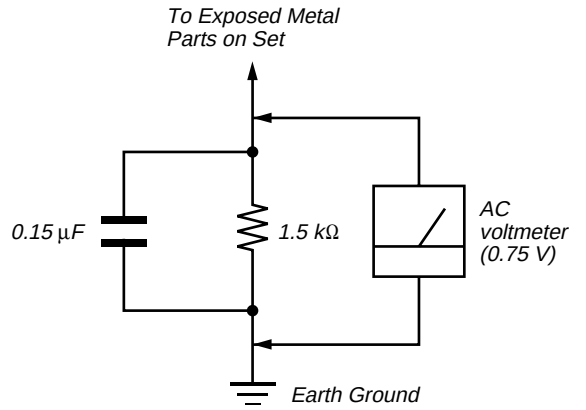


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

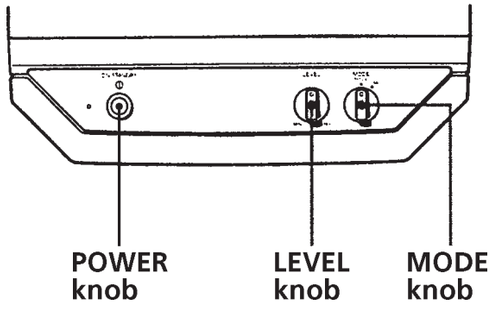
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

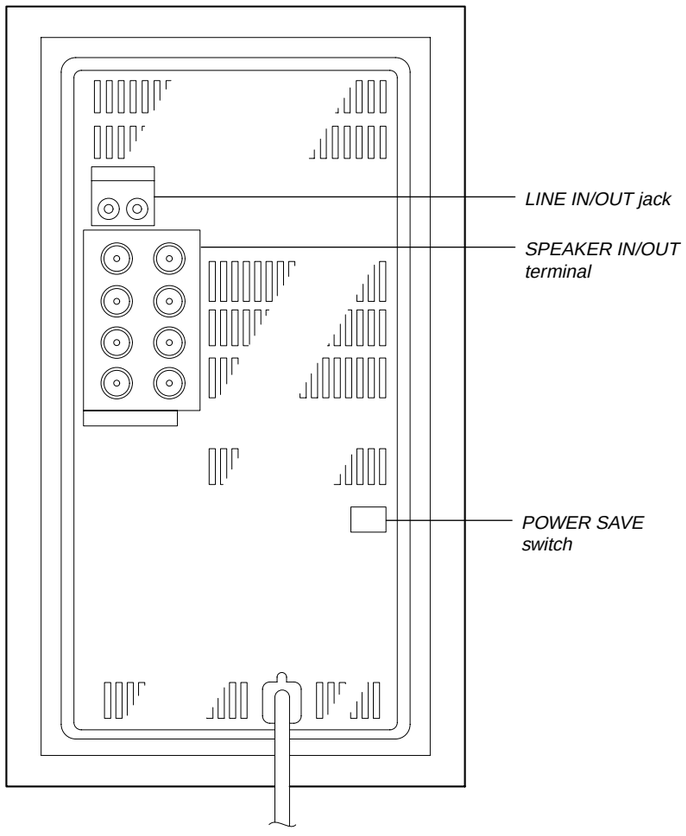
SECTION 1
GENERAL

• **Location of Controls**

SA-WMS5
– Front view –



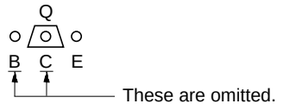
– Rear view –



SECTION 2
DIAGRAMS

2-1. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:
• ○——— : parts extracted from the component side.
• ▒▒▒▒ : Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)
• Indication of transistor.

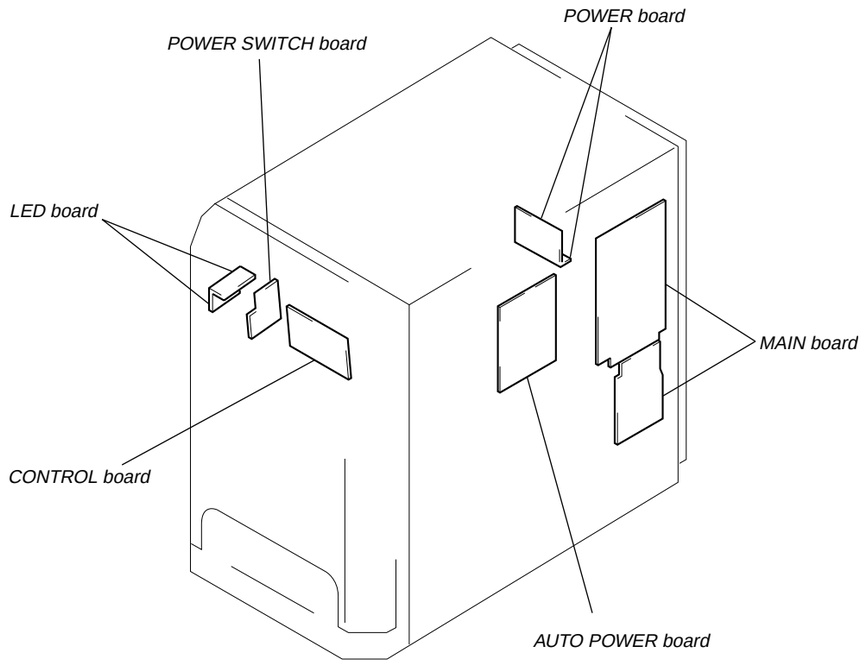


Note on Schematic Diagram:
• All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and 1/4 W or less unless otherwise specified.
• ⊣▭⊢ : nonflammable resistor.
• ▭ : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

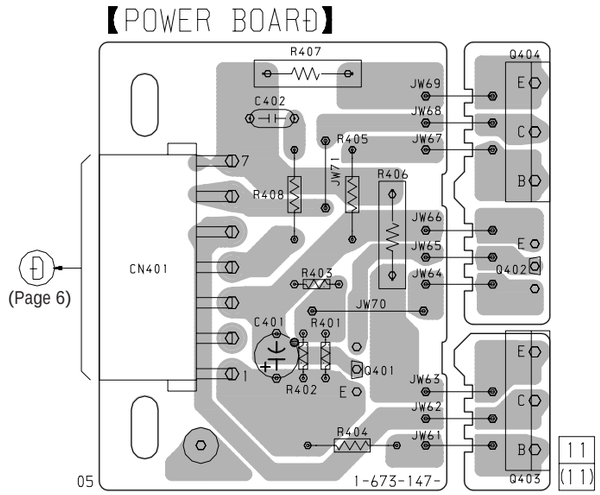
• B+ : B+ Line.
• B− : B– Line.
• Voltages are dc with respect to ground under no-signal conditions.
no mark : AUDIO
• Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
• Signal path.
⇨ : AUDIO
• Abbreviation
CND : Canadian

• **Circuit Boards Location**
– SA-WMS5 –

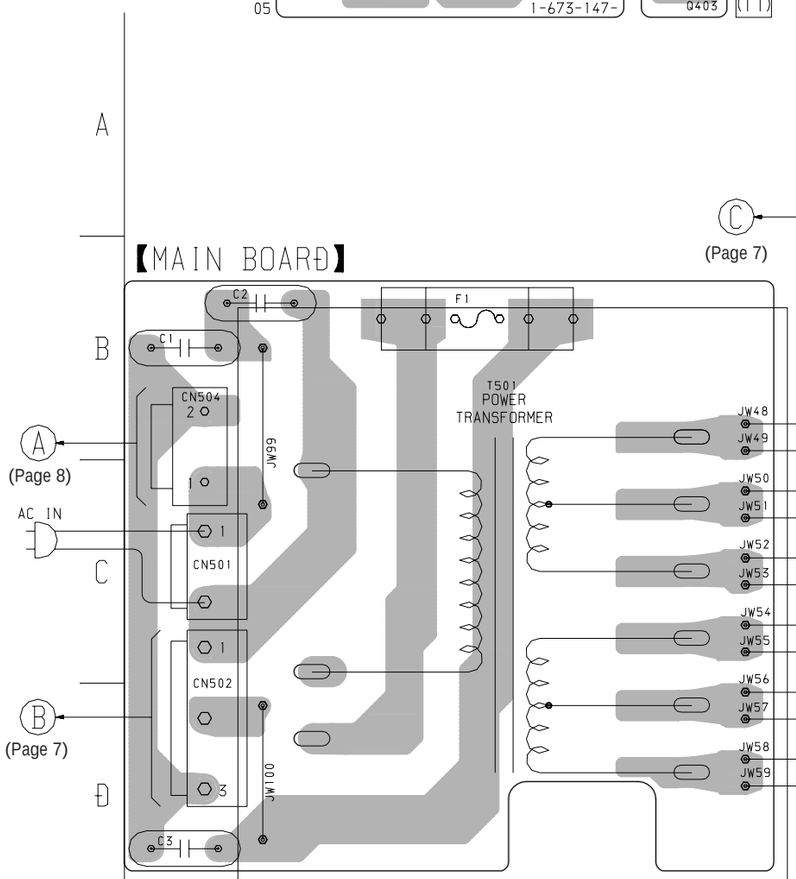


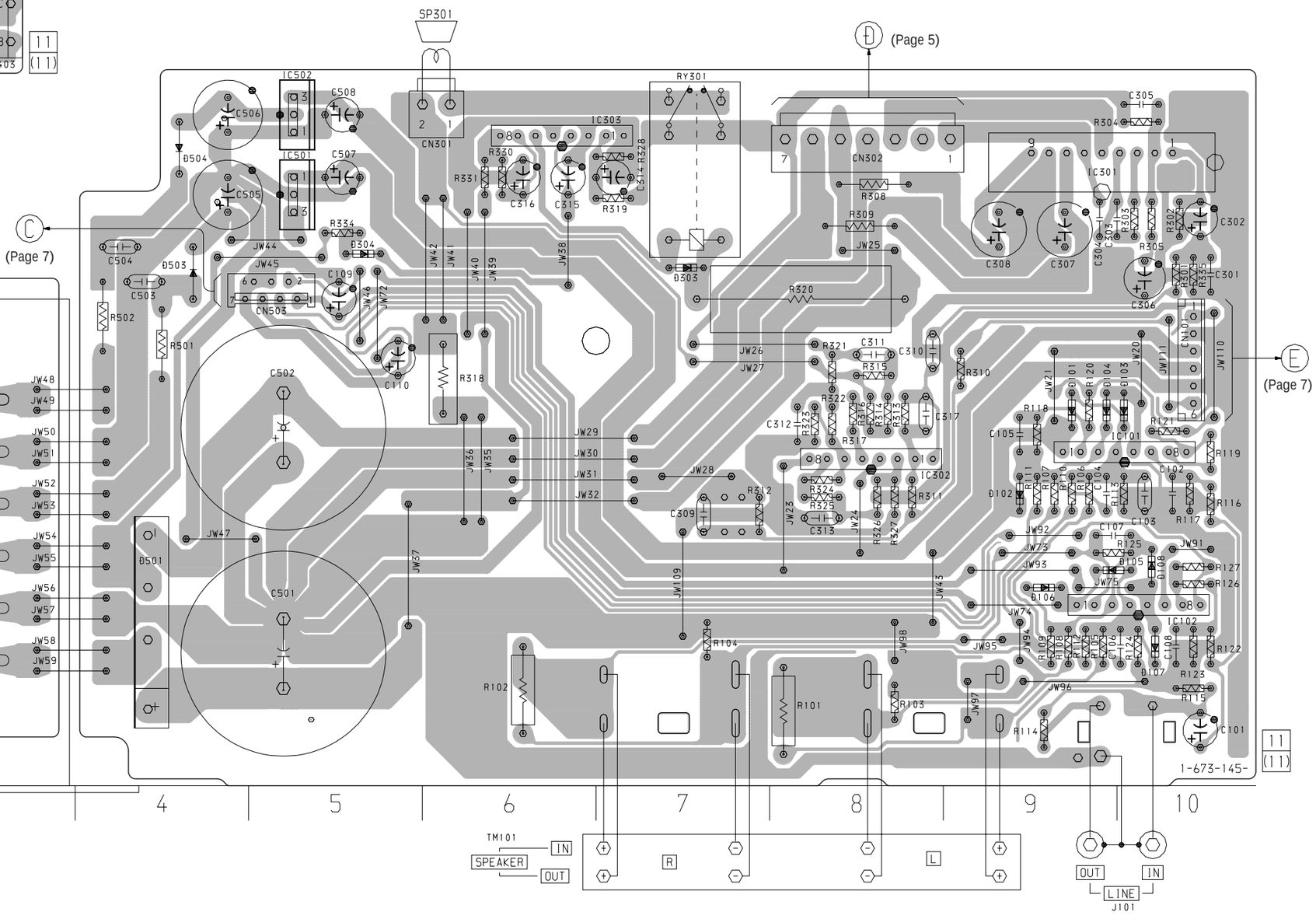
2-2. PRINTED WIRING BOARDS • See page 4 for Circuit Boards Location.

【POWER BOARD】



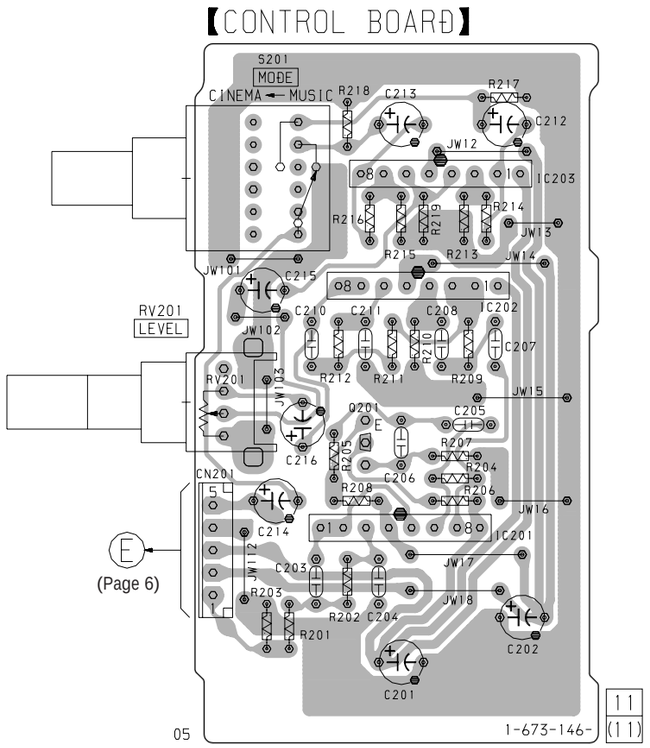
【MAIN BOARD】

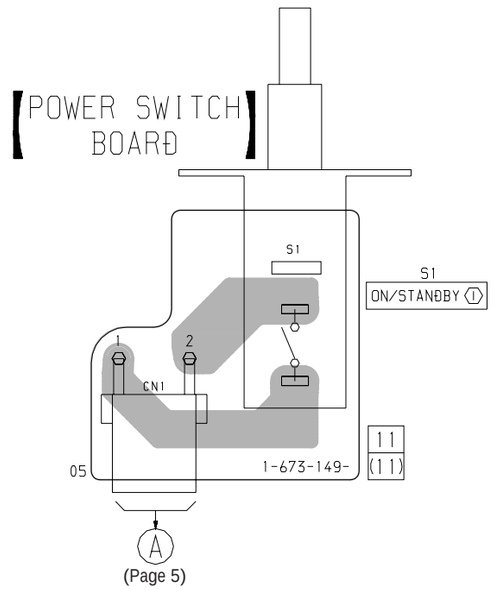




- **Semiconductor Location – MAIN Board –**

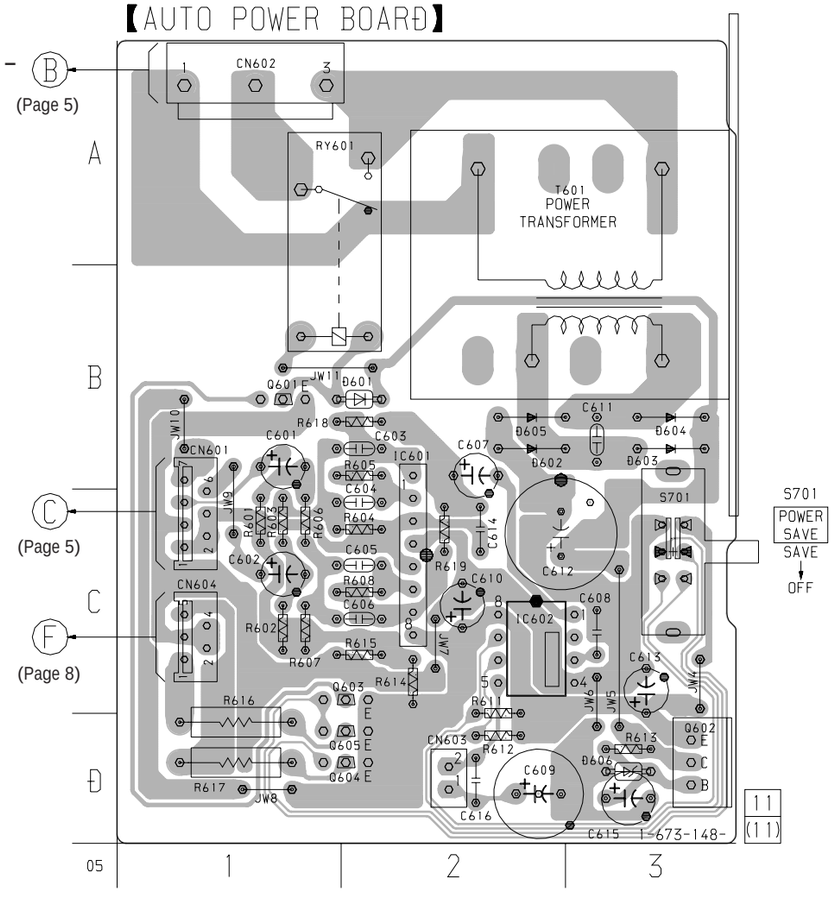
Ref. No.	Location
D101	B-9
D102	C-9
D103	B-10
D104	B-9
D105	C-9
D106	C-9
D107	D-10
D108	C-10
D303	B-7
D304	B-5
D501	D-4
D503	B-4
D504	A-4
IC101	C-10
IC102	D-10
IC301	A-9
IC302	C-8
IC303	A-6
IC501	A-5
IC502	A-5

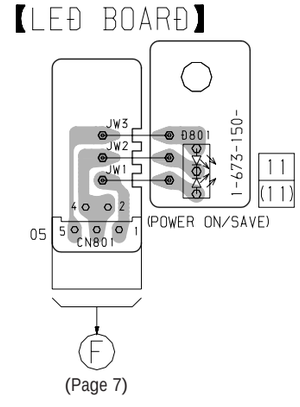




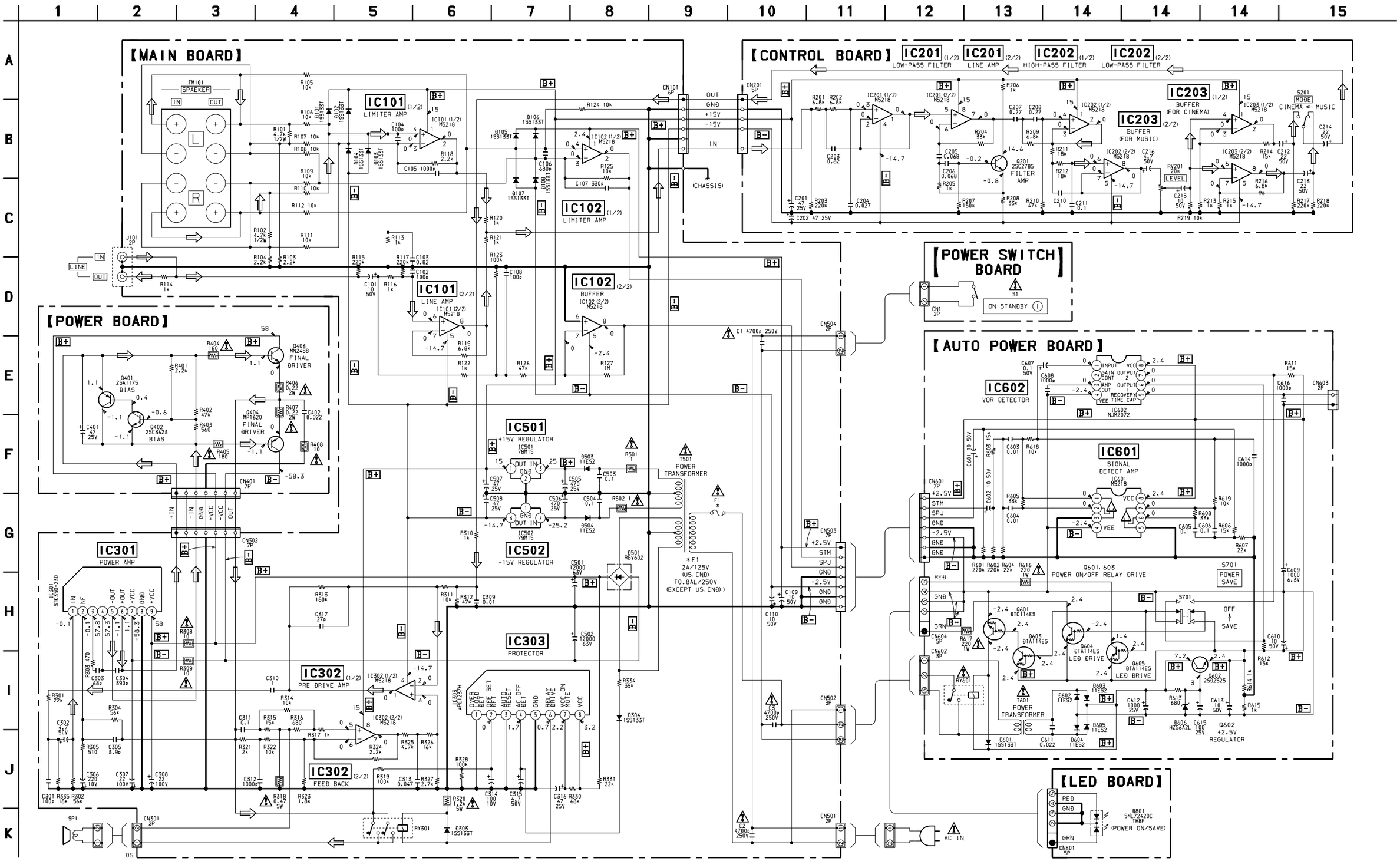
- **Semiconductor Location – AUTO POWER Board –**

Ref. No.	Location
D601	B-2
D602	B-2
D603	B-3
D604	B-3
D605	B-2
D606	D-3
IC601	C-2
IC602	C-2
Q601	B-1
Q602	D-3
Q603	C-2
Q604	D-2
Q605	D-2





2-3. SCHEMATIC DIAGRAM • See page 11 for IC Block Diagrams.

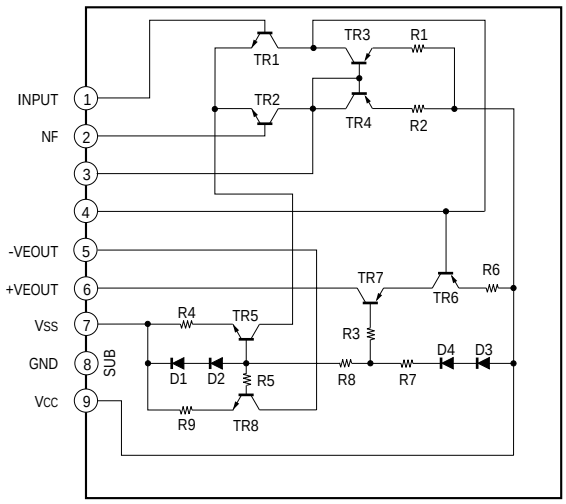


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

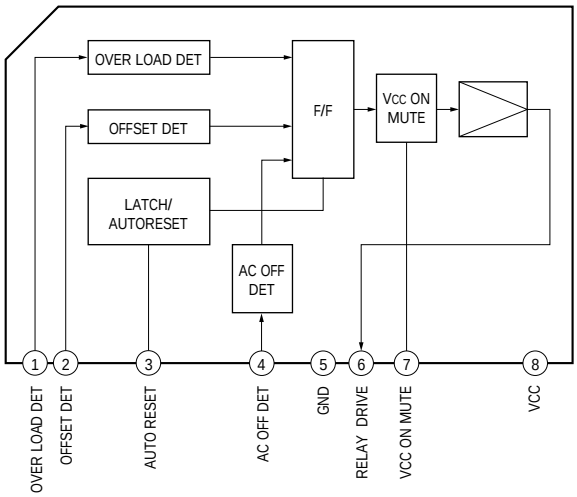
• **IC Block Diagrams**

– MAIN Board –

IC301 STK350-230

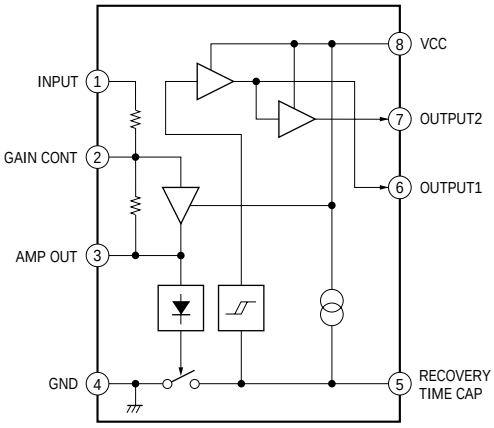


IC303 µPC1237HA



– AUTO POWER Board –

IC602 NJM2072D



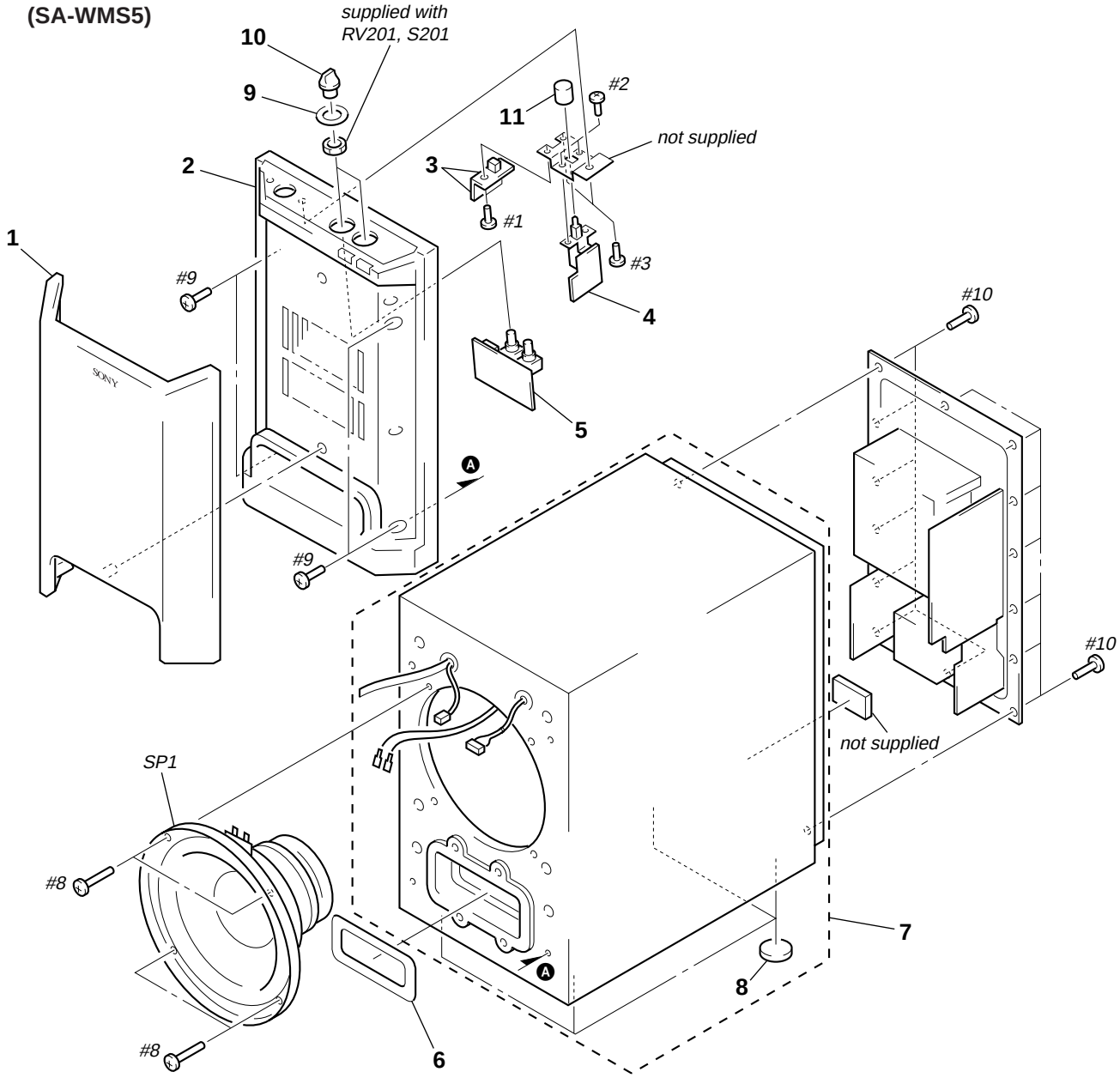
SECTION 3
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  CND : Canadian model MY : Malaysia model
  G : German model SP : Singapore model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

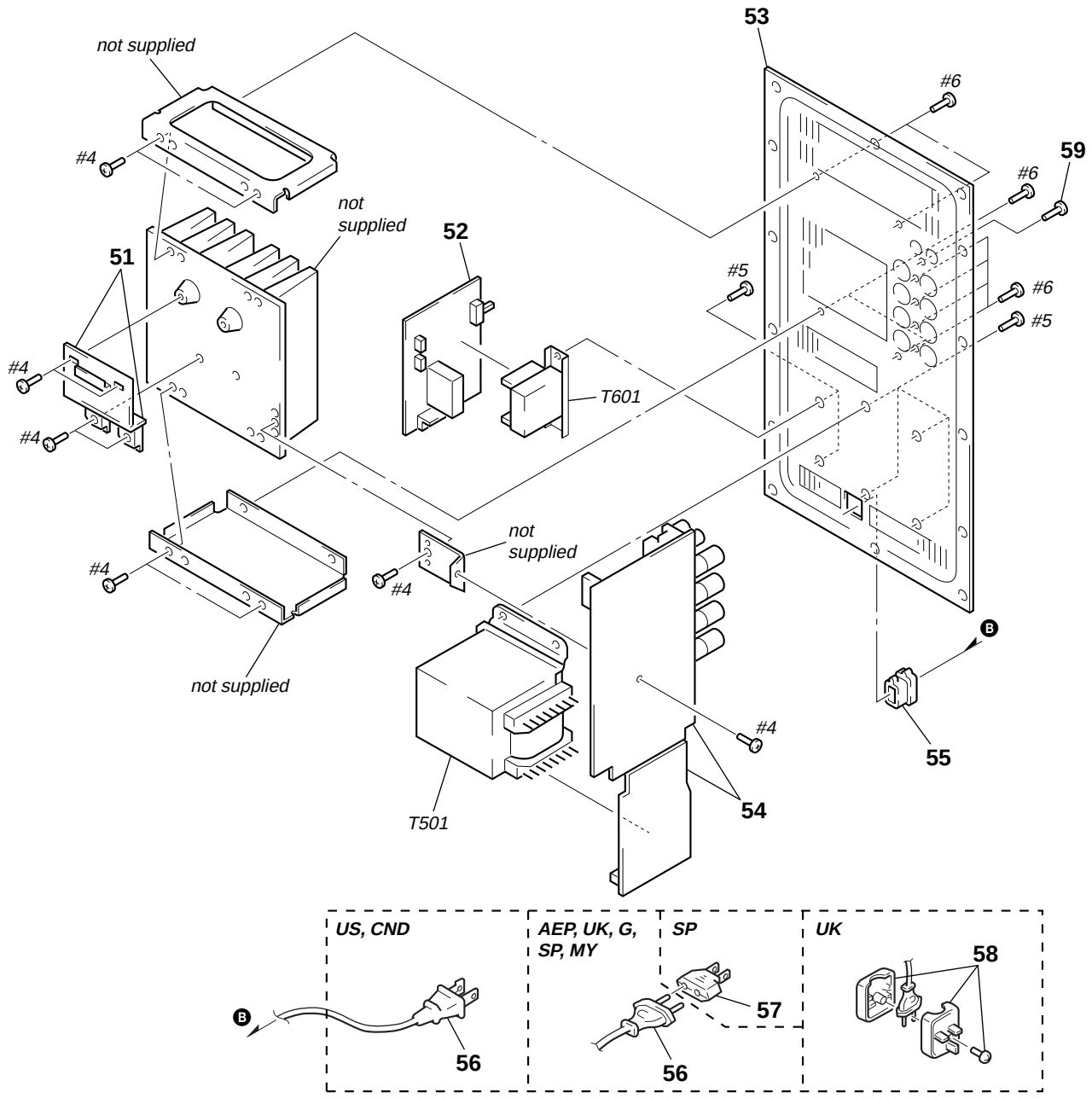
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(1) FRONT PANEL SECTION (SA-WMS5)



Ref. No.	Part No.	Description	Remark
1	X-4951-099-1	FRAME ASSY, GRILLE	
2	X-4951-100-1	PANEL ASSY, FRONT	
3	1-673-150-11	LED BOARD	
4	1-673-149-11	POWER SWITCH BOARD	
5	1-673-146-11	CONTROL BOARD	
6	4-217-284-01	PACKING	
7	A-4411-447-A	CABINET ASSY, SPEAKER	
8	4-981-864-01	FOOT	
9	4-217-642-01	SHEET	
10	4-999-482-21	KNOB (VOL)	
11	4-973-938-41	KNOB (A), PUSH	
SP1	1-529-296-11	SPEAKER (20cm)	

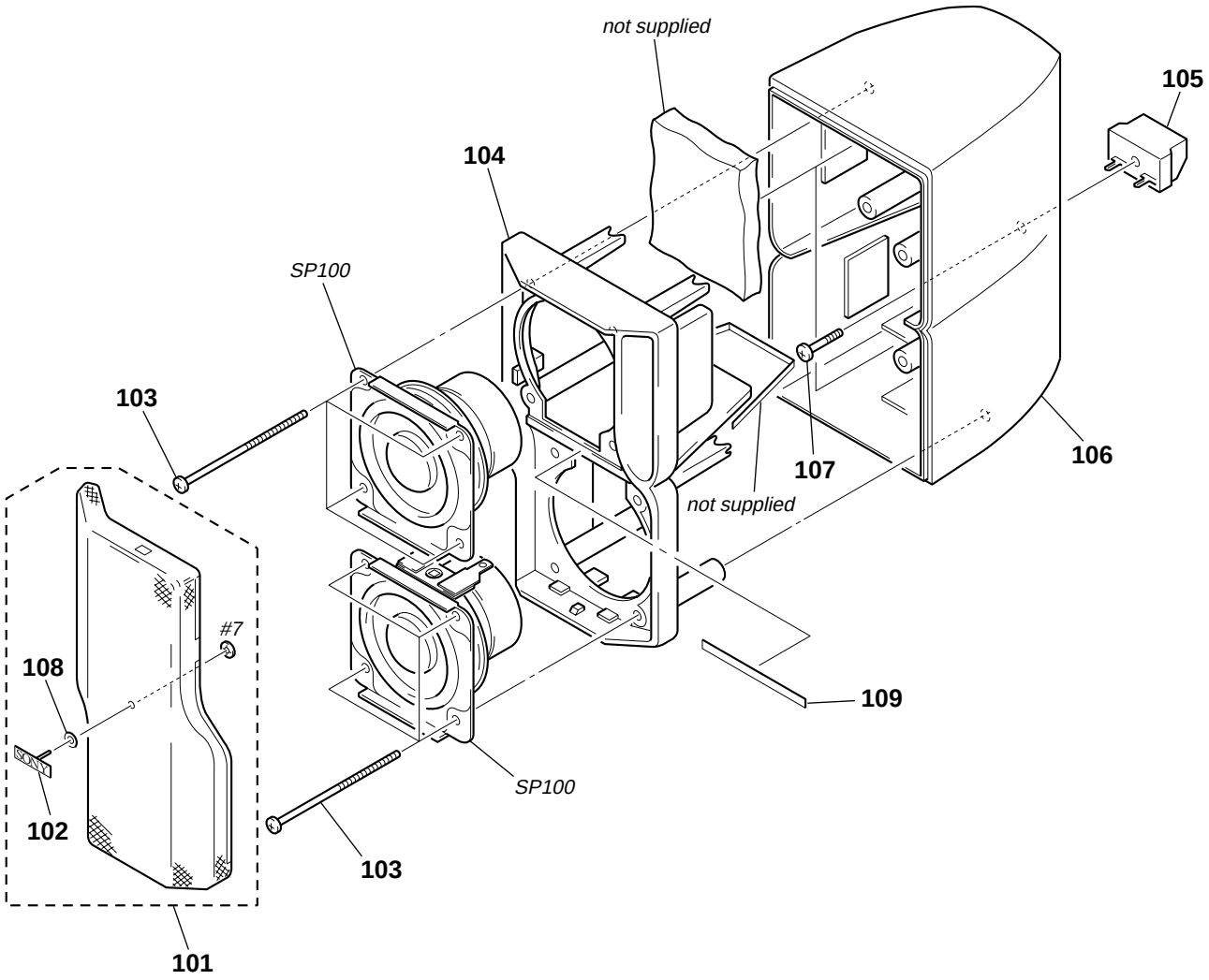
(2) AMPLIFIER SECTION (SA-WMS5)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	1-673-147-11	POWER BOARD	
52	A-4419-290-A	AUTO POWER BOARD, COMPLETE	
53	4-217-294-01	PANEL, REAR	
54	A-4419-286-A	MAIN BOARD, COMPLETE	
* 55	3-703-244-00	BUSHING (2104), CORD	
⚠56	1-769-744-11	CORD, POWER (AEP, UK, G, MY, SP)	
⚠56	1-783-531-11	CORD, POWER (US, CND)	
⚠57	1-569-008-21	ADAPTOR, CONVERSION 2P (SP)	
⚠58	1-770-019-21	ADAPTOR, CONVERSION PLUG 3P (UK)	
59	3-710-901-11	SCREW, TAPPING	
⚠T501	1-433-726-11	TRANSFORMER, POWER (US, CND)	
⚠T501	1-433-728-11	TRANSFORMER, POWER (EXCEPT US, CND)	
⚠T601	1-433-731-11	TRANSFORMER, POWER (US, CND)	
⚠T601	1-433-732-11	TRANSFORMER, POWER (EXCEPT US, CND)	

(3) SS-MS5



Ref. No.	Part No.	Description	Remark
101	X-4951-148-1	GRILLE ASSY, FRONT	
102	X-4951-498-1	EMBLEM ASSY, SONY	
103	4-217-715-01	SCREW (3.5X50), +P TAPPING	
104	4-217-295-01	PANEL, FRONT	
105	1-694-516-11	TERMINAL, SPEAKER	
106	X-4951-147-1	CABINET ASSY	
107	4-986-971-11	SCREW (3.5)	
108	3-701-436-21	WASHER, POLYEHTHYLENE	
109	4-220-713-01	SHEET	
SP100	1-529-292-11	SPEAKER (5cm)	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  CND : Canadian model SP : Singapore model
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description				Remark
	A-4419-290-A	AUTO POWER BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C601	1-126-964-11	ELECT	10uF	20%	50V	
C602	1-126-964-11	ELECT	10uF	20%	50V	
C603	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C604	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C605	1-164-159-11	CERAMIC	0.1uF		50V	
C606	1-164-159-11	CERAMIC	0.1uF		50V	
C607	1-126-956-91	ELECT	0.1uF	20%	50V	
C608	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C609	1-126-916-11	ELECT	1000uF	20%	6.3V	
C610	1-126-964-11	ELECT	10uF	20%	50V	
C611	1-161-494-00	CERAMIC	0.022uF		25V	
C612	1-126-942-61	ELECT	1000uF	20%	25V	
C613	1-126-964-11	ELECT	10uF	20%	50V	
C614	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C615	1-104-665-11	ELECT	100uF	20%	25V	
C616	1-162-294-31	CERAMIC	0.001uF	10%	50V	
		< CONNECTOR >				
CN601	1-568-439-11	SOCKET, CONNECTOR 7P				
* CN602	1-564-687-11	PIN, CONNECTOR 3P				
* CN603	1-565-513-11	PIN, CONNECTOR 2P				
CN604	1-569-315-11	SOCKET, CONNECTOR 5P				
		< DIODE >				
D601	8-719-991-33	DIODE 1SS133T-77				
D602	8-719-200-82	DIODE 11ES2				
D603	8-719-200-82	DIODE 11ES2				
D604	8-719-200-82	DIODE 11ES2				
D605	8-719-200-82	DIODE 11ES2				
D606	8-719-985-85	DIODE HZS6A2L				
		< IC >				
IC601	8-759-634-50	IC M5218AL				
IC602	8-759-701-55	IC NJM2072D				
		< TRANSISTOR >				
Q601	8-729-029-66	TRANSISTOR DTC114ESA				
Q602	8-729-026-68	TRANSISTOR 2SD2525				
Q603	8-729-422-57	TRANSISTOR UN4111				
Q604	8-729-422-57	TRANSISTOR UN4111				
Q605	8-729-422-57	TRANSISTOR UN4111				
		< RESISTOR >				
R601	1-247-887-00	CARBON	220K	5%	1/4W	
R602	1-247-887-00	CARBON	220K	5%	1/4W	
R603	1-249-431-11	CARBON	15K	5%	1/4W	
R604	1-249-433-11	CARBON	22K	5%	1/4W	
R605	1-249-435-11	CARBON	33K	5%	1/4W	
R606	1-249-431-11	CARBON	15K	5%	1/4W	
R607	1-249-433-11	CARBON	22K	5%	1/4W	
R608	1-249-435-11	CARBON	33K	5%	1/4W	
R611	1-249-431-11	CARBON	15K	5%	1/4W	
R612	1-249-431-11	CARBON	15K	5%	1/4W	
R613	1-249-415-11	CARBON	680	5%	1/4W	
R614	1-249-417-11	CARBON	1K	5%	1/4W	
R615	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R616	1-215-865-81	METAL OXIDE	220	5%	1W	F
⚠R617	1-215-865-81	METAL OXIDE	220	5%	1W	F
R618	1-249-429-11	CARBON	10K	5%	1/4W	
R619	1-249-429-11	CARBON	10K	5%	1/4W	
		< RELAY >				
⚠RY601	1-755-276-11	RELAY, POWER				
		< SWITCH >				
S701	1-570-707-31	SWITCH, SLIDE (POWER SAVE)				
		< TRANSFORMER >				
⚠T601	1-433-731-11	TRANFOORMER, POWER (US, CND)				
⚠T601	1-433-732-11	TRANFOORMER, POWER (EXCEPT US, CND)				
		**********				
	1-673-146-11	CONTROL BOARD				
		**********				
		< CAPACITOR >				
C201	1-104-664-11	ELECT	47uF	20%	25V	
C202	1-104-664-11	ELECT	47uF	20%	25V	
C203	1-136-176-00	FILM	0.82uF	5%	50V	
C204	1-136-158-00	FILM	0.027uF	5%	50V	
C205	1-136-163-00	FILM	0.068uF	5%	50V	
C206	1-136-163-00	FILM	0.068uF	5%	50V	

CONTROL | LED | MAIN

Ref. No.	Part No.	Description			Remark
C207	1-136-170-00	FILM	0.27uF	5%	50V
C208	1-136-170-00	FILM	0.27uF	5%	50V
C210	1-136-177-00	FILM	1uF	5%	50V
C211	1-136-165-00	FILM	0.1uF	5%	50V
C212	1-126-965-11	ELECT	22uF	20%	50V
C213	1-126-965-11	ELECT	22uF	20%	50V
C214	1-126-965-11	ELECT	22uF	20%	50V
C215	1-126-964-11	ELECT	10uF	20%	50V
C216	1-126-963-11	ELECT	4.7uF	20%	50V
		< CONNECTOR >			
* CN201	1-564-520-11	PLUG, CONNECTOR 5P			
		< IC >			
IC201	8-759-634-50	IC M5218AL			
IC202	8-759-634-50	IC M5218AL			
IC203	8-759-634-50	IC M5218AL			
		< TRANSISTOR >			
Q201	8-729-178-55	TRANSISTOR 2SC2785-E			
		< RESISTOR >			
R201	1-249-427-11	CARBON	6.8K	5%	1/4W
R202	1-249-427-11	CARBON	6.8K	5%	1/4W
R203	1-247-887-00	CARBON	220K	5%	1/4W
R204	1-249-435-11	CARBON	33K	5%	1/4W
R205	1-249-417-11	CARBON	1K	5%	1/4W
R206	1-249-417-11	CARBON	1K	5%	1/4W
R207	1-247-883-00	CARBON	150K	5%	1/4W
R208	1-249-435-11	CARBON	33K	5%	1/4W
R209	1-249-427-11	CARBON	6.8K	5%	1/4W
R210	1-249-437-11	CARBON	47K	5%	1/4W
R211	1-249-432-11	CARBON	18K	5%	1/4W
R212	1-249-432-11	CARBON	18K	5%	1/4W
R213	1-249-417-11	CARBON	1K	5%	1/4W
R214	1-249-431-11	CARBON	15	5%	1/4W
R215	1-249-417-11	CARBON	1K	5%	1/4W
R216	1-249-427-11	CARBON	6.8K	5%	1/4W
R217	1-247-887-00	CARBON	220K	5%	1/4W
R218	1-247-887-00	CARBON	220K	5%	1/4W
R219	1-249-429-11	CARBON	10K	5%	1/4W
		< VARIABLE RESISTOR >			
RV201	1-225-826-11	RES, VAR, CARBON 20K (LEVEL)			
		< SWITCH >			
S201	1-771-632-11	SWITCH, ROTARY (MODE)			
**********					
	1-673-150-11	LED BOARD			
		**********			
		< CONNECTOR >			
CN801	1-569-299-11	SOCKET, CONNECTOR (L TYRE) 5P			
		< LED >			
D801	8-719-061-31	LED SML72420CTH8F (POWER ON/SAVE)			
**********					

Ref. No.	Part No.	Description			Remark
	A-4419-286-A	MAIN BOARD, COMPLETE			
		**********			
	1-533-233-11	HOLDER, FUSE			
		< CAPACITOR >			
⚠C1	1-113-924-11	CERAMIC	0.0047uF	20%	250V
⚠C2	1-113-924-11	CERAMIC	0.0047uF	20%	250V
⚠C3	1-113-924-11	CERAMIC	0.0047uF	20%	250V
C101	1-126-964-11	ELECT	10uF	20%	50V
C102	1-162-282-31	CERAMIC	100PF	10%	50V
C103	1-136-176-00	FILM	0.82uF	5%	50V
C104	1-162-282-31	CERAMIC	100PF	10%	50V
C105	1-162-294-31	CERAMIC	0.001uF	10%	50V
C106	1-162-292-31	CERAMIC	680PF	10%	50V
C107	1-162-288-31	CERAMIC	330PF	10%	50V
C108	1-162-282-31	CERAMIC	100PF	10%	50V
C109	1-126-964-11	ELECT	10uF	20%	50V
C110	1-126-964-11	ELECT	10uF	20%	50V
C301	1-162-282-31	CERAMIC	100PF	10%	50V
C302	1-126-963-11	ELECT	4.7uF	20%	50V
C303	1-162-219-31	CERAMIC	68PF	5%	50V
C304	1-162-289-31	CERAMIC	390PF	10%	50V
C305	1-162-194-31	CERAMIC	3.9PF	10%	50V
C306	1-126-934-11	ELECT	220uF	20%	10V
C307	1-128-560-11	ELECT	22uF	20%	100V
C308	1-128-560-11	ELECT	22uF	20%	100V
C309	1-130-483-00	MYLAR	0.01uF	5%	50V
C310	1-136-177-00	FILM	1uF	5%	50V
C311	1-130-495-00	MYLAR	0.1uF	5%	50V
C312	1-162-294-31	CERAMIC	0.001uF	10%	50V
C313	1-130-491-00	MYLAR	0.047uF	5%	50V
C314	1-104-665-11	ELECT	100uF	20%	10V
C315	1-126-963-11	ELECT	4.7uF	20%	50V
C316	1-104-664-11	ELECT	47uF	20%	25V
C317	1-162-209-31	CERAMIC	27PF	5%	50V
C501	1-127-891-11	ELECT	12000uF	20%	63V
C502	1-127-891-11	ELECT	12000uF	20%	63V
C503	1-136-165-00	FILM	0.1uF	5%	50V
C504	1-136-165-00	FILM	0.1uF	5%	50V
C505	1-126-941-11	ELECT	470uF	20%	25V
C506	1-126-941-11	ELECT	470uF	20%	25V
C507	1-104-664-11	ELECT	47uF	20%	25V
C508	1-104-664-11	ELECT	47uF	20%	25V
		< CONNECTOR >			
* CN101	1-564-521-11	PLUG, CONNECTOR 6P			
* CN301	1-565-792-11	PIN, CONNECTOR 2P			
* CN302	1-564-915-11	PIN, CONNECTOR 7P			
CN501	1-564-321-00	PIN, CONNECTOR 2P			
* CN502	1-564-687-11	PIN, CONNECTOR 3P			
CN503	1-568-439-11	SOCKET, CONNECTOR 7P			
* CN504	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D101	8-719-991-33	DIODE 1SS133T-77			
D102	8-719-991-33	DIODE 1SS133T-77			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
D103	8-719-991-33	DIODE 1SS133T-77			
D104	8-719-991-33	DIODE 1SS133T-77			
D105	8-719-991-33	DIODE 1SS133T-77			
D106	8-719-991-33	DIODE 1SS133T-77			
D107	8-719-991-33	DIODE 1SS133T-77			
D108	8-719-991-33	DIODE 1SS133T-77			
D303	8-719-991-33	DIODE 1SS133T-77			
D304	8-719-991-33	DIODE 1SS133T-77			
D501	8-719-302-37	DIODE RBV-602			
D503	8-719-200-82	DIODE 11ES2			
D504	8-719-200-82	DIODE 11ES2			
		< FUSE >			
⚠F1	1-532-501-31	FUSE (T0.8AL/250V) (EXCEPT US, CND)			
⚠F1	1-533-296-11	FUSE, GLASS CYLINDRICAL (DIA.5) (2A/125V) (US, CND)			
		< IC >			
IC101	8-759-634-50	IC M5218AL			
IC102	8-759-634-50	IC M5218AL			
IC301	8-749-011-16	IC STK350-230			
IC302	8-759-634-50	IC M5218AL			
IC303	8-759-111-68	IC uPC1237HA			
IC501	8-759-604-40	IC M5F78M15			
IC502	8-759-604-46	IC M5F79M15			
		< JACK >			
J101	1-785-795-11	JACK, PIN 2P (LINE IN/OUT)			
		< RESISTOR >			
R101	1-260-107-11	CARBON	4.7K	5%	1/2W
R102	1-260-107-11	CARBON	4.7K	5%	1/2W
R103	1-249-421-11	CARBON	2.2K	5%	1/4W
R104	1-249-421-11	CARBON	2.2K	5%	1/4W
R105	1-249-429-11	CARBON	10K	5%	1/4W
R106	1-249-429-11	CARBON	10K	5%	1/4W
R107	1-249-429-11	CARBON	10K	5%	1/4W
R108	1-249-429-11	CARBON	10K	5%	1/4W
R109	1-249-429-11	CARBON	10K	5%	1/4W
R110	1-249-429-11	CARBON	10K	5%	1/4W
R111	1-249-429-11	CARBON	10K	5%	1/4W
R112	1-249-429-11	CARBON	10K	5%	1/4W
R113	1-249-417-11	CARBON	1K	5%	1/4W
R114	1-249-417-11	CARBON	1K	5%	1/4W
R115	1-247-887-00	CARBON	220K	5%	1/4W
R116	1-249-417-11	CARBON	1K	5%	1/4W
R117	1-247-887-00	CARBON	220K	5%	1/4W
R118	1-249-421-11	CARBON	2.2K	5%	1/4W
R119	1-249-427-11	CARBON	6.8K	5%	1/4W
R120	1-249-417-11	CARBON	1K	5%	1/4W
R121	1-249-417-11	CARBON	1K	5%	1/4W
R122	1-249-417-11	CARBON	1K	5%	1/4W
R123	1-249-441-11	CARBON	100K	5%	1/4W
R124	1-249-429-11	CARBON	10K	5%	1/4W
R125	1-249-429-11	CARBON	10K	5%	1/4W
R126	1-249-437-11	CARBON	47K	5%	1/4W
R127	1-247-903-00	CARBON	1M	5%	1/4W

Ref. No.	Part No.	Description			Remark
R301	1-249-433-11	CARBON	22K	5%	1/4W
R302	1-249-438-11	CARBON	56K	5%	1/4W
R303	1-249-413-11	CARBON	470	5%	1/4W
R304	1-249-438-11	CARBON	56K	5%	1/4W
R305	1-249-442-11	CARBON	510	5%	1/4W
⚠R308	1-247-688-11	CARBON	10	5%	1/4W F
⚠R309	1-247-688-11	CARBON	10	5%	1/4W F
R310	1-249-417-11	CARBON	1K	5%	1/4W
R311	1-249-429-11	CARBON	10K	5%	1/4W
R312	1-249-437-11	CARBON	47K	5%	1/4W
R313	1-247-885-11	CARBON	180K	5%	1/4W
R314	1-249-429-11	CARBON	10K	5%	1/4W
R315	1-249-431-11	CARBON	15K	5%	1/4W
R316	1-249-415-11	CARBON	680	5%	1/4W
R317	1-249-417-11	CARBON	1K	5%	1/4W
⚠R318	1-217-158-00	METAL	0.47	10%	5W F
R319	1-249-441-11	CARBON	100K	5%	1/4W
⚠R320	1-216-505-51	METAL OXIDE	1.2K	5%	5W F
R321	1-247-838-00	CARBON	2K	5%	1/4W
R322	1-249-429-11	CARBON	10K	5%	1/4W
R323	1-249-420-11	CARBON	1.8K	5%	1/4W
R324	1-249-421-11	CARBON	2.2K	5%	1/4W
R325	1-249-425-11	CARBON	4.7K	5%	1/4W
R326	1-247-860-11	CARBON	16K	5%	1/4W
R327	1-249-422-11	CARBON	2.7K	5%	1/4W
R328	1-249-441-11	CARBON	100K	5%	1/4W
R330	1-249-439-11	CARBON	68K	5%	1/4W
R331	1-249-433-11	CARBON	22K	5%	1/4W
R334	1-249-436-11	CARBON	39K	5%	1/4W
R335	1-249-432-11	CARBON	18K	5%	1/4W
⚠R501	1-249-381-11	CARBON	1	5%	1/4W F
⚠R502	1-249-381-11	CARBON	1	5%	1/4W F
		< RELAY >			
RY301	1-515-920-11	RELAY (24V)			
		< TRANSFORMER >			
⚠T501	1-433-726-11	TRANFOORMER, POWER (US, CND)			
⚠T501	1-433-728-11	TRANFOORMER, POWER (EXCEPT US, CND)			
		< TERMINAL >			
TM101	1-537-737-11	TERMINAL BOARD (SPEAKER IN/OUT)			
**********					
	1-673-147-11	POWER BOARD **********			
		< CAPACITOR >			
C401	1-104-664-11	ELECT	47uF	20%	25V
C402	1-137-372-11	FILM	0.022uF	5%	50V
		< CONNECTOR >			
* CN401	1-770-318-11	PIN, CONNECTOR 7P			
		< TRANSISTOR/IC >			
Q401	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q402	8-729-141-30	TRANSISTOR 2SC3623A-LK			

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POWER | POWER SWITCH

Ref. No.	Part No.	Description				Remark
Q403	8-749-010-25	IC MN2488-OPY-M				
Q404	8-749-010-26	IC MP1620-OPY-M				
		< RESISTOR >				
R401	1-249-421-11	CARBON	2.2K	5%	1/4W	
R402	1-249-437-11	CARBON	47K	5%	1/4W	
R403	1-249-414-11	CARBON	560	5%	1/4W	
⚠R404	1-249-408-11	CARBON	180	5%	1/4W	F
⚠R405	1-249-408-11	CARBON	180	5%	1/4W	F
⚠R406	1-217-151-00	METAL	0.22	10%	2W	F
⚠R407	1-217-151-00	METAL	0.22	10%	2W	F
⚠R408	1-249-393-11	CARBON	10	5%	1/4W	F
	1-673-149-11	POWER SWITCH BOARD				
		< CONNECTOR >				
CN1	1-564-321-00	PIN, CONNECTOR 2P				
		< SWITCH >				
⚠S1	1-554-920-11	SWITCH, PUSH (AC POWER) (1 KEY) (ON/STANDBY ⏻)				
		MISCELLANEOUS				
⚠56	1-769-744-11	CORD, POWER (AEP, UK, G, MY, SP)				
⚠56	1-783-531-11	CORD, POWER (US, CND)				
⚠57	1-569-008-21	ADAPTOR, CONVERSION 2P (SP)				
⚠58	1-770-019-21	ADAPTOR, CONVERSION PLUG 3P (UK)				
105	1-694-516-11	TERMINAL, SPEAKER				
SP1	1-529-296-11	SPEAKER (20cm)				
SP100	1-529-292-11	SPEAKER (5cm)				
⚠T501	1-433-726-11	TRANSFORMER, POWER (US, CND)				
⚠T501	1-433-728-11	TRANSFORMER, POWER (EXCEPT US, CND)				
⚠T601	1-433-731-11	TRANSFORMER, POWER (US, CND)				
⚠T601	1-433-732-11	TRANSFORMER, POWER (EXCEPT US, CND)				
		HARDWARE LIST				
#1	7-685-645-79	SCREW +P 3X6 TYPE2 SLIT				
#2	7-685-146-29	SCREW +P 3X8 TYPE2 SLIT				
#3	7-682-147-01	SCREW +P 3X6				
#4	7-685-648-79	SCREW +P 3X12 TYPE2 NON-SLIT				
#5	7-685-660-19	SCREW +BVTP 4X10 TYPE2 N-S				
#6	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT				
#7	7-624-200-11	NUT, PUSH 2				
#8	7-685-163-01	SCREW +P 4X16 TYPE1				
#9	7-685-116-01	SCREW +PTP 4X30 TYPE1				
#10	7-685-662-79	SCREW +BVTP 4X14 TYPE2 N-S				

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
	1-769-329-21	CORD, CONNECTION (PIN-PIN)	
	1-790-503-11	CORD, SPEAKER (2.5m)	
	1-790-503-21	CORD, SPEAKER (10m) (VE505)	
	3-701-443-21	WASHER, 5 DIA.	
	3-866-761-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH)	
	3-866-761-21	MANUAL, INSTRUCTION (GERMAN, SPANISH, DUTCH, SWEDISH, ITALIAN, PORTUGUESE, POLISH, RUSSIAN, DANISH, FINNISH, CHINESE) (EXCEPT US, CND)	
	4-219-450-01	SCREW (M5X16)	
	X-4951-476-1	STAY ASSY	
	X-4951-477-1	BASE ASSY	

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